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ABSTRACT

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Effects of Ability Grouping on Elementary School Pupils: A Meta-analysis

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Abstract

A meta-analysis of findings from 31 separate studies showed that ability grouping has significant positive effects on the academic performance of elementary school children. The benefits of grouping tended to be small in the typical study of achievement--an increase from the 50th to the 58th percentile for the typical student in a grouped class. One subgroup of studies, however, produced especially clear effects. In this type of study, students of high ability, or "gifted" students, were put into special classes in which they received enriched instruction. Studies of this type usually reported significant results, and they usually reported effects on achievement that were moderate in size. Meta-analysis also showed that ability grouping had trivially small effects on self-concepts of elementary school pupils.

Effects of Ability Grouping on Elementary School Pupils: A Meta-analysis

Does ability grouping--the practice of organizing classrooms in graded schools to combine children who are similar in ability--have positive or negative effects on school children? The question is a familiar one to most teachers and educational researchers. Few questions about classroom organization have been around for so long; few have inspired so much research; and few have been the subject of so many reviews.

The central message from all the reviews, however, is that nothing has been established with certainty about grouping. The earliest reviews and the most recent concluded that there is no clear evidence that ability grouping is either harmful or beneficial. Only the emphasis of the reviewers has changed with the passing years. In the 1950s, reviewers often found some support in the literature for the idea that grouping is especially beneficial for high aptitude students. In the era of equal education opportunity that followed, the tide gradually turned against ability grouping. Reviews often focussed on possible negative effects of the practice, especially for disadvantaged students and especially in the areas of self-concept and achievement motivation.

A recent study on grouping in secondary schools introduced a new quantitative approach--Glass's (1976) meta-analysis--into this area (Kulik & Kulik, 1982). The meta-analysis covered results from 52 separate studies in grades 6 through 12. In the typical study, the benefits from grouping were small but significant on achievement examinations, averaging an increase of one-tenth standard deviations, or an increase from the 50th to the 54th percentile for the typical student in a grouped class. The size of achievement effect differed in different types of studies of grouping, however. Studies in which high-ability students received enriched instruction in honors classes produced especially clear effects, for example, whereas studies of average and below average students produced near-zero effects.

The purpose of this paper is to apply the same meta-analytic techniques to studies of grouping at the elementary school level. Like the earlier meta-analysis, this paper does not cover grouping in all its aspects. It covers experimental studies that divide students of a certain grade within a school into classes differing in average ability level. It does not cover studies of inter-school grouping (where students are assigned to different types of schools

on the basis of test scores); studies of intra-class grouping (where students are grouped and regrouped within a classroom for instruction in particular subjects); studies of rapid promotion; and studies of nongraded schools.

Method

An extensive computer search of three library data bases yielded 31 separate studies of grouping effects in elementary schools. The studies differed from one another in a number of features: in their experimental designs, settings, publication histories, and implementations of grouping. The studies contained findings on grouping in two major areas: student achievement and student self-concept.

Results

Twenty-eight studies examined effects of grouping on achievement test performance (Table 1). Eight studies looked at effects on student self-concepts.

Achievement. In 20 of the 28 studies with achievement findings, performance was better in the grouped class; in the remaining 8 studies, performance was better in the ungrouped class. In 13 of the 28 studies, the difference in achievement of grouped and ungrouped classes was large enough to be considered statistically significant. Eleven of these 13 studies favored homogeneous grouping, and 2 studies favored heterogeneous grouping.

The average effect of grouping in the 28 studies was to raise student scores on achievement tests by .19 standard deviations. This means that in the typical study, grouping raised student grade-equivalent scores by approximately 2 months. It is also equivalent to raising student achievement scores from the 50th to the 58th percentile. These average achievement effects are clearly larger than those found earlier in studies of grouping in secondary schools.

The average effect of grouping was different for two different types of programs: programs designed specifically for gifted and talented students and programs designed for more representative populations. In studies of programs designed specifically for gifted and talented students, grouping raised achievement test scores by .49 standard deviations. In studies of programs for more representative populations, grouping raised achievement test scores by .07 standard deviations.

Self-concept. In four of the nine studies investigating affective outcomes, grouping had a trivial or small positive effect on self-concept; in five studies, it had a trivial or small negative effect. The average effect

of grouping in all nine studies was to reduce self-acceptance by .06 standard deviations--a trivial overall effect. This result was basically consistent with the findings in our meta-analysis of secondary school grouping, in which we found an increase in favorability of self-concept of .01 standard deviations.

Conclusion

What meta-analysis established about ability grouping of elementary school pupils seems clear enough. Meta-analysis showed that students gained somewhat more from grouped classes than they did from ungrouped ones. The benefits of grouping tended to be small in the typical study of achievement--an increase from the 50th to the 58th percentile for the typical student in a grouped class. One subgroup of studies, however, produced especially clear effects. In this type of study, students of high ability, or "gifted" students, were put into a special class in which they received enriched instruction. Studies of this type usually reported effects on achievement that were significant and moderate in size.

These conclusions about achievement effects are generally consistent with findings from earlier narrative reviews, but our conclusions about effects on self-concept are not. Recent reviews have tended to emphasize the negative effects that grouping has on self-concepts of low-ability pupils. Such conclusions, however, are usually based on anecdotal and uncontrolled studies. The controlled studies that we examined gave a very different picture of the effects of grouping on self-concept. The effects of grouping on student self-concepts were trivial in size in the typical study.

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Table 1

Major Features and Achievement Effect Sizes in 28 Studies of Homogeneous Grouping

Study	Place	Target group	Starting grade	Course content	Weeks of instruction	Achievement effect size
Atkinson & O'Connor (1963)	Michigan	R	6	C	36	0.61
Barker Lunn (1970)						
Study I	England	R	2	C	108	-0.01
Study II	England	R	3	C	36	-0.27
Barthelmess (1932)	Pennsylvania	R	4	C	36	0.38
Bell (1959)	Indiana	T	5	C	36	0.68
Berkun, Swanson, & Sawyer (1966)	California	R	4	L	36	0.32
Borg (1964)	Utah	R	5	C	36	0.32
Breidenstine (1937)	Pennsylvania	R	3	C	108	0.08
Bremer (1958)	Texas	R	1	L	36	-0.12
Cluff (1964)	Kansas	T	4	C	72	0.23
Daniels (1961)	England	R	1	C	144	-0.24
Flair (1964)	Indiana	R	1	C	36	0.04
Goldberg, Passow, & Justman (1966)	Pennsylvania	R	5	C	72	-0.13
Gray & Hollingworth (1931)	New York	T	3	C	108	
Hartill (1936)	New York	R	5	C	20	0.01
Johnston (1973)	Florida	R	1	C	36	-0.03
Jones & McCall (1926)	Virginia	T	5	C	72	0.60
Koontz (1961)	Virginia	R	4	C	36	-0.31
Loomer (1962)	Iowa	R	5	C	36	-0.02
Luttrell (1959)	North Carolina	T	6	C	28	0.70
McCall (1928)	New York	T	3	C	72	0.71
Morgenstern (1963)	New York	R	4	C	108	0.15
Moses (1965)	Louisiana	R	5	L	18	0.05
Provus (1960)	Illinois	R	5	M	36	0.27

Table 1 (continued)

Study	Place	Target group	Starting grade	Course content	Weeks of instruction	Achievement effect size
Rankin, Anderson, & Bergman (1936)	Michigan	R	3	C	72	0.65
Schwartz (1943)	New York	T	3	C	16	0.32
Simpson (1961)	California	T	5	C	36	0.48
Worlton (1928)	Utah	T	4	C	108	0.39

Note. R = representative of population; T = talented students; C = combined; L = language arts; M = mathematics.